SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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ELECTRICAL

Valid to: May 31, 2019 Certificate Number: 3331.05

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following product safety, radio, telecommunications, and electromagnetic compatibility (EMC) tests:

Test Description:	**Test Method(s) [1]:**
Emissions	
Radiated & Conducted *(up to 40 GHz)*	47 CFR, FCC Part 15, Subpart B (using ANSI C63.4:2014); ANSI C63.4:2009; 47 CFR, FCC Part 18 (using MP-5:1986); IEC/CISPR 11; EN 55011; EN/IEC 55012; CISPR 12; EC/EN 55013; CISPR 14-1; IEC/EN 55014-1; CISPR 15; IEC/EN 55015; IEC/CISPR 22; EN 55022; AS/NZS CISPR 22:2009 + A1:2010; EN 55032; CISPR 32; KN 32; ICES-001, Issue 4; ICES-003, Issue 5; VCCI V-3 (*up to 6 GHz*); CNS 13803; CNS 13783-1; CNS 13438:2006 (*up to 6 GHz*); TCVN 7189 (2009); J55014 (H2O); JIS C 1806-1; RTCA/DO-160D, Sections 21.3 and 21.4; MIL-STD-462; MIL-STD-461D/E/F CE101, CE102, RE101, RE102
Current Harmonics	IEC/EN 61000-3-2; JIS C 61000-3-2; KN 61000-3-2
Flicker and Fluctuations	EN/IEC 61000-3-3; KN 61000-3-3

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Test Description:	**Test Method(s) [1]:**
Immunity	
Electrostatic Discharge	IEC/EN 61000-4-2; KN 61000-4-2; RTCA/DO-160D, Section 25
Radiated	IEC/EN 61000-4-3; KN 61000-4-3
Electrical Fast Transient / Burst	IEC/EN 61000-4-4; KN 61000-4-4
Surge	IEC/EN 61000-4-5; KN 61000-4-5; IEEE Std C37.90.1
Conducted	IEC/EN 61000-4-6; KN 61000-4-6
Power Frequency Magnetic Field	IEC/EN 61000-4-8; KN 61000-4-8
Voltage Dips, Short Interrupts and Voltage Variations	IEC/EN 61000-4-11; KN 61000-4-11
Ring Wave	IEEE Std. C62.41
Generic / Product Specific EMC Standards [2]	EN/IEC 61000-6-1; EN/IEC 61000-6-2; EN/IEC 61000-6-3; EN/IEC 61000-6-4; KN 61000-6-1; KN 61000-6-2; KN 61000-6-3; KN 61000-6-4; IEC/EN 61204-3; EN/IEC 60601-1-2; KN 60601-1-2; EN/IEC 61547; ISO 11451-4; EN/IEC 12895; EN/IEC 13309; EN 12015; EN 12016; EN/ISO 13766; EN/ISO 14982; EN 50121-3-2; EN 50121-2; EN 50121-3-1; EN 50121-4; EN 62233; EN 55103-1; EN 55103-2; EN/IEC 61326-1; EN/IEC 61326-2-6; EN/IEC 61326-3-2; EN/IEC 61800-3; KN 61800-3; CISPR 24; EN 55024; KN 24; KN 35: EN 50121-1; EN 50130-4; EN 55103-2; EN 50121-4; EN 50121-3-2; EN/IEC 50155; EN 50270; EN 50293; EN/IEC 55014-2; IEC/CISPR 14-2; KN 14-1; KN 14-2; EN 50370-1; EN 50370-2; EN 50361; EN 50364; EN 50371; KN 15; KN 20; KN 24; KN 61547; ETSI EN 301 489-1; ETSI EN 301 489-3; ETSI EN 301 489-4; ETSI EN 301 489-5; ETSI EN 301 489-6; ETSI EN 301 489-7; ETSI EN 301 489-8; ETSI EN 301 489-9; ETSI EN 301 489-10;

Test Description:	**Test Method(s) [1]:**
Generic / Product Specific EMC Standards [2] ***(cont.)***	ETSI EN 301 489-12; ETSI EN 301 489-15; ETSI EN 301 489-16; ETSI EN 301 489-17; ETSI EN 301 489-18; ETSI EN 301 489-19; ETSI EN 301 489-20; ETSI EN 301 489-23; ETSI EN 301 489-24; ETSI EN 301 489-25; ETSI EN 301 489-26; ETSI EN 300 386 V1.5.1/ V1.6.1; KN 301 489-01; KN 301 489-03; KN 301 489-07; KN 301 489-17
Radio Communications *(excluding SAR, DFS & HAC)*	
Unlicensed Radio - FCC	47 CFR, FCC Part 2; 47 CFR, FCC Part 15, Subpart C (using ANSI C63.4:2014 and ANSI C63.10:2013); 47 CFR, FCC Part 15, Subpart D (using ANSI C63.17:2013 and ANSI C63.4:2014); 47 CFR, FCC Part 15, Subpart E (using ANSI C63.10:2013); ANSI C63.4:2009
Licensed Radio - FCC	CFR 47, FCC Part 2; CFR 47, FCC Parts 22, 24, 25, 27, 90, 95, 97, 101 (using ANSI/TIA-603-D and TIA-102.CAAA-D)
Canada	Radio Scope 1 RSS-Gen; RSS-102; RSS-210; RSS-213; RSS-215; RSS-216; RSS-220; RSS-236; RSS-238; RSS-243; RSS-244; RSS-247 (without DFS); RSS-251; RSS-287; RSS-288 Radio Scope 2 RSS-Gen; RSS-102; RSS-112; RSS-130; RSS-132; RSS-133; RSS-134; RSS-139; RSS-170 Radio Scope 3 RSS-Gen; RSS-102; RSS-111; RSS-119; RSS-123; RSS-125; RSS-127; RSS-131; RSS-135; RSS-137; RSS-197; RSS-199 Radio Scope 4 RSS-Gen; RSS-102; RSS-117; RSS-141; RSS-181; RSS-182 Radio Scope 5 RSS-Gen; RSS-102; RSS-142; RSS-191; RSS-192; RSS-194; RSS-195; RSS-196
Australia / New Zealand	ACA Standard 2003; ACMA Radiocommunications (Short Range Devices) Standard 2004; AS/NZS 4268:2012; Radiation Protection Series No. 3

Test Description:	**Test Method(s) [1]:**
Radio Communications (cont.) *(excluding SAR, DFS & HAC)*	
Europe (EU)	ETSI EN 300 220-1; ETSI EN 300 220-2; ETSI EN 300 328; ETSI EN 300 330-1; ETSI EN 300 330-2; ETSI EN 300 440-1; ETSI EN 300 440-2; ETSI EN 302 208-1; ETSI EN 302 208-2; EN 300 113-1; EN 300 113-2; EN 302 511; EN 301-908-1; EN 301-908-2; EN 301-908-13
Hong Kong	HKCA 1039; HKCA 1041; HKCA 1042; HKCA 1049
Taiwan	DGT LP0002; DGT LP0001
Singapore	IMDA TS SRD; IMDA TS UWB
Vietnam	QCVN 54:2011/BTTTT; QCVN 55:2011/BTTTT
Japan	ARIB Standard STD-T66; ARIB Standard STD-T67; ARIB Standard STD-T70
Electromagnetic Exposure (SAR)	IEC 62209-1; IEC 62209-2; IEEE 1528:2013
Bluetooth Test Specification	Bluetooth Test Specification RF.TS.4.2.2

[1] When the date, revision or edition of a test method standard is not identified on the scope of accreditation, the laboratory is required to be using the current version within one year of the date of publication, per part C., Section 1 of A2LA *R101 - General Requirements - Accreditation of ISO-IEC 17025 Laboratories*.

[2] For Product Family Standards listed on this scope of accreditation, the laboratory is found to be compliant with all test methods referenced within the Product Family Standard. As such, if outdated versions of the specific test methods are identified by the Product Family Standards listed on this scope of accreditation, it is not necessary to explicitly list the outdated versions of the specific test methods on the scope. In addition, the laboratory is capable of issuing accredited test reports to the outdated versions of the specific test methods although the outdated versions are not listed on this scope of accreditation.

Testing Activities Performed in Support of FCC Declaration of Conformity and Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1 [3]:

Rule Subpart/Technology	Test Method	Maximum Frequency
Unintentional Radiators Part 15B	ANSI C63.4:2014	40000 MHz
Industrial, Scientific, and Medical Equipment Part 18	FCC MP-5 (February 1986)	40000 MHz
Intentional Radiators Part 15C	ANSI C63.10:2013	40000 MHz
Unlicensed Personal Communication Systems Devices Part 15D	ANSI C63.17:2013	40000 MHz
U-NII without DFS Intentional Radiators Part 15E	ANSI C63.10:2013	40000 MHz
Commercial Mobile Services (FCC Licensed Radio Service Equipment) Parts 22 (cellular), 24, 25 (below 3 GHz), and 27	ANSI/TIA-603-D; TIA-102.CAAA-D	40000 MHz
General Mobile Radio Services (FCC Licensed Radio Service Equipment) Parts 22 (non-cellular), 90 (below 3 GHz), 95, 97 (below 3 GHz), and 101 (below 3 GHz)	ANSI/TIA-603-D; TIA-102.CAAA-D	40000 MHz

[3]Accreditation does not imply acceptance to the FCC equipment authorization program. Please see the FCC website (https://apps.fcc.gov/oetcf/eas/) for a listing of FCC approved laboratories.

Accredited Laboratory

A2LA has accredited

TUV RHEINLAND OF NORTH AMERICA, INC.

Youngsville, NC

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 6th day of April 2017.

Senior Director, Accreditation Services
For the Accreditation Council
Certificate Number 3331.05
Valid to May 31, 2019
Revised December 28, 2018

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.